

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

**Resistance Training and the Elderly: An Investigation into  
Psychological Wellbeing and Life Satisfaction**

A thesis presented in partial fulfilment of the requirements for the  
degree of Master of Arts in Psychology

at Massey University, Palmerston North, New Zealand.

Kevin Maxwell Barker

2005

## **ABSTRACT**

This exploratory study examined the psychological benefits of high-intensity resistance training in an elderly age group. Participants in the sample (N=76) aged between 70-80, were randomly allocated to two groups (37 exercisers- 18 female and 19 male; 39 controls- 20 female and 19 male). Both groups completed five self-report questionnaires measuring psychological variables. The Purpose in Life Test (PIL), Profile of Mood States (POMS), State-Trait Anxiety Inventory (STAI), Affectometer 2, Rosenbergs Self-Esteem Scale (RSES) and a Dynamometer hand-grip strength test were administered pre-test, mid-test and post-test .The independent variable in this study was a 12 week high-intensity resistance training programme especially designed for this age group and supervised by qualified instructors at a commercial gymnasium. Repeated measures ANOVA produced results that indicated a high intensity resistance training programme provided strength gains, and improved some aspects of psychological wellbeing and life satisfaction components in older adults. There are positive indications from this study that this format of planned exercise can assist in the promotion of life quality enabling adaptation to changing situations often accompanying increasing age.

## **ACKNOWLEDGEMENTS**

First and foremost, a sincere debt of gratitude to my wife Haana, a source of support and love over the past seven years. It was your vision that inspired me to embark on this academic journey, and it has been your strength and commitment that has made this thesis possible.

I would like to thank Dr Richard Fletcher, my supervisor for the direction and encouragement that pulled through those darkest hours.

Many thanks to the manager of the ASB Gymfit Kerikeri gymnasium, Debbie Klinac, instructor and mentor Anthony Warren, Richard Mason and Jill Lowe. Thank you all for believing in this project and providing the level of support that saw the “gym experience” with the elderly group the very best part of the project.

Next, a big thank you to Karen Watene for your word processing skills, and unfailing commitment to help over the past years, your kindness has made the challenging process of studying at a distance so much easier.

I would like to thank the staff at the Kerikeri High School Information Technology department, Guy, Paul and Amy, and Homestead Physio for their invaluable assistance.

Special mention here of my parents, Max and Moira, now gone, but always present.

Thank you for the examples you consistently set.

Lastly, my children, Corey, Ashleigh and Tayler. Nothing would make sense without you; you have provided the best ‘time out’ from the rigours of countless assignments.

Approval for this research was obtained from the Massey University Human Ethics Committee (approval No.04/061) and the Health and Disabilities Ethics Committee (approval No. AKX /04/8/229) for the experiment described in the thesis.

## TABLE OF CONTENTS

ABSTRACT.....	i
ACKNOWLEDGEMENTS.....	ii
TABLE OF CONTENTS.....	iv
APPENDICES .....	vi
LIST OF TABLES .....	vii
LIST OF FIGURES.....	viii
CHAPTER ONE: Introduction .....	1
A. Rationale.....	1
B. Definition of Terms .....	4
CHAPTER TWO: Literature review.....	6
A. Introduction.....	6
B. Effects of Exercise on Physiological Functioning .....	8
C. Balance, Flexibility and Falls .....	9
D. Effect of Exercise on Psychological Functioning.....	13
E. Progressive Resistance Training and the Elderly.....	23
CHAPTER THREE: Methodology.....	27
A. Participants .....	27
B. Experimental Design .....	27
C. Protocol / Measures .....	28
D. Procedures .....	34
E. Data Analysis.....	37

CHAPTER FOUR: Results.....	38
A. Descriptive Characteristics .....	38
B. Scale Descriptive and Reliability Data.....	38
C. Analysis .....	40
CHAPTER FIVE: Discussion.....	54
A. Strength.....	54
B. Purpose in Life Test.....	56
C. Affectometer 2 Test (negative mood).....	58
D. POMS subscale: Tension-Anxiety.....	59
E. POMS subscale: Depression-Dejection.....	61
F. POMS subscale: Anger-Hostility .....	62
G. POMS subscale: Fatigue-Inertia .....	64
H. POMS subscale: Vigor-Activity .....	65
I. POMS subscale: Confusion-Bewilderment .....	66
J. POMS subscale: Friendliness .....	67
State-Trait Anxiety Inventory, Rosenberg Self-Esteem Scale and the Positive Mood Component of the Affectometer 2 .....	69
Suggested Future Research Directions .....	70
CONCLUSION.....	72
REFERENCES .....	73

## APPENDICES

Appendix A.....	88
Information sheet	
Appendix B.....	91
Research questionnaires	
Appendix C.....	106
Exercise Prescription	
Appendix D.....	107
Participant consent form	
Appendix E.....	108
Health checklist	
Appendix F.....	110
Medical consent form	
Appendix G.....	111
Advertisement	



## LIST OF TABLES

Table 1: Scale Descriptives and Reliability Data .....	39
Table 2: Scale Descriptives and Reliability Data for POMS subscales.....	39
Table 3. Independent Samples <i>t</i> test at Time 1.....	41

## LIST OF FIGURES

Figure 1. Mean scores for Strength over Times 1, 2 and 3. ....	42
Figure 2. Mean scores for the Purpose in Life Test over Times 1, 2 and 3.....	43
Figure 3. Mean scores for the Affectometer 2 negative mood subscales over Times 1, 2 and 3. ....	44
Figure 4. Mean scores for POMS subscale tension-anxiety over Times 1, 2 and 3.....	45
Figure 5. Mean scores for POMS subscale depression-dejection over Times 1, 2 and 3.....	46
Figure 6. Mean scores for POMS subscale anger-hostility over Times 1, 2 and 3. ....	47
Figure 7. Mean scores for POMS subscale fatigue-inertia over Times 1, 2 and 3.....	49
Figure 8. Mean scores for POMS subscale confusion-bewilderment over Times 1, 2 and 3.....	50
Figure 9. Mean scores for POMS subscale friendliness over Times 1, 2 and 3.....	51
Figure 10. Mean scores for POMS subscale vigor-activity over Times 1, 2 and 3.....	52